

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re U.S. Patent Application of )  
 )  
KOBAYASHI et al. )  
 )  
Application Number: -To be Assigned )  
 )  
Filed: Concurrently Herewith )  
 )  
For: LIQUID CRYSTAL DISPLAY )

Honorable Assistant Commissioner  
for Patents  
Washington, D.C. 20231

**PRELIMINARY AMENDMENT**

Sir:

Applicant has amended the claim in order to eliminate the multiple dependency of claim and thereby reduce the filing fee in accordance with standard U.S. practice. Prior to an examination on the merits, please amend the above-identified application as follows:

**IN THE CLAIMS:**

Please substitute the claims with the following amended claims:

3. (Amended) A liquid crystal display device according to Claim 1, wherein the pixel electrode and the counter electrode are formed as different layers with an insulating film interposed therebetween, either one of the pixel electrode and the counter electrode being formed of a transparent conductive layer.
12. (Amended) A liquid crystal display device according to Claim 1, wherein ionic image retention is not observed after pixels have been turned on for two minutes.
14. (Amended) A liquid crystal display device according to Claim 1, wherein each of the alignment films has a film thickness of 40 nm to 300 nm.
15. (Amended) A liquid crystal display device according to Claim 1, wherein the insulating film has a film thickness of 100 nm to 4  $\mu$ m.
16. (Amended) A liquid crystal display device according to Claim 1, wherein the liquid

crystal molecules each of which has a difluorobenzene structure in itself.

17. (Amended) A liquid crystal display device according to Claim 1, wherein the liquid crystal contains liquid crystal molecules each of which has a dicyanobenzene structure in itself.
18. (Amended) A liquid crystal display device according to Claim 1, wherein the liquid crystal contains liquid crystal molecules each of which has a difluorobenzene structure in itself, as well as liquid crystal molecules each of which has a dicyanobenzene structure in itself.
19. (Amended) A liquid crystal display device according to Claim 1, wherein the liquid crystal contains liquid crystal molecules each of which has a monocyanocyclohexane structure in itself.
20. (Amended) A liquid crystal display device according to Claim 1, wherein the liquid crystal contains liquid crystal molecules each of which has a monocyanocyclohexane structure in itself, as well as liquid crystal molecules each of which has a difluorobenzene structure in itself.
21. (Amended) A liquid crystal display device according to any of Claims 1 to 20 or 22 to 41, wherein its ionic image retention strength is 3 or less.

Please add the following new claims:

22. A liquid crystal display device according to Claim 2, wherein the pixel electrode and the counter electrode are formed as different layers with an insulating film interposed therebetween, either one of the pixel electrode and the counter electrode being formed of a transparent conductive layer.
23. A liquid crystal display device according to Claim 2, wherein ionic image retention is not observed after pixels have been turned on for two minutes.
24. A liquid crystal display device according to Claim 3, wherein ionic image retention is not observed after pixels have been turned on for two minutes.
25. A liquid crystal display device according to Claim 4, wherein ionic image retention is not observed after pixels have been turned on for two minutes.
26. A liquid crystal display device according to Claim 5, wherein ionic image retention is not observed after pixels have been turned on for two minutes.
27. A liquid crystal display device according to Claim 6, wherein ionic image retention is not observed after pixels have been turned on for two minutes.

28. A liquid crystal display device according to Claim 7, wherein ionic image retention is not observed after pixels have been turned on for two minutes.
29. A liquid crystal display device according to Claim 8, wherein ionic image retention is not observed after pixels have been turned on for two minutes.
30. A liquid crystal display device according to Claim 9, wherein ionic image retention is not observed after pixels have been turned on for two minutes.
31. A liquid crystal display device according to Claim 10, wherein ionic image retention is not observed after pixels have been turned on for two minutes.
32. A liquid crystal display device according to Claim 11, wherein ionic image retention is not observed after pixels have been turned on for two minutes.
33. A liquid crystal display device according to Claim 2, wherein each of the alignment films has a film thickness of 40 nm to 300 nm.
34. A liquid crystal display device according to Claim 3, wherein the insulating film has a film thickness of 100 nm to 4  $\mu$ m.
35. A liquid crystal display device according to Claim 22, wherein the insulating film has a film thickness of 100 nm to 4  $\mu$ m.
36. A liquid crystal display device according to Claim 10, wherein the insulating film has a film thickness of 100 nm to 4  $\mu$ m.
37. A liquid crystal display device according to Claim 13, wherein the liquid crystal molecules each of which has a difluorobenzene structure in itself.
38. A liquid crystal display device according to Claim 13, wherein the liquid crystal contains liquid crystal molecules each of which has a dicyanobenzene structure in itself.
39. A liquid crystal display device according to Claim 13, wherein the liquid crystal contains liquid crystal molecules each of which has a difluorobenzene structure in itself, as well as liquid crystal molecules each of which has a dicyanobenzene structure in itself.
40. A liquid crystal display device according to Claim 13, wherein the liquid crystal contains liquid crystal molecules each of which has a monocyanocyclohexane structure in itself.
41. A liquid crystal display device according to Claim 13, wherein the liquid crystal contains liquid crystal molecules each of which has a monocyanocyclohexane

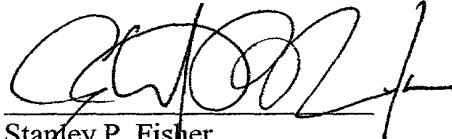


**REMARKS**

Applicant has amended claim 3 and added claim 22, amended claim 12 and added claims 23-32, amended claim 14 and added claim 33, amended claim 15 and added claims 34, 35 and 36; amended claim 16 and added claim 37, amended claim 17 and added claim 38, amended claim 18 and added claim 39, amended claim 19 and added claim 40, amended claim 20 and added claim 41, and amended claim 21. No new matter has been added to the application as a result of this amendment.

In view of the above amendments and Applicant's comments stated herein, Applicant respectfully requests an early and favorable action on the merits.

Respectfully submitted,



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### Marked Up Version of the Claims

3. A liquid crystal display device according to Claim 1 ~~or~~ 2, wherein the pixel electrode and the counter electrode are formed as different layers with an insulating film interposed therebetween, either one of the pixel electrode and the counter electrode being formed of a transparent conductive layer.
12. A liquid crystal display device according to ~~any of~~ Claims 1 ~~to~~ 11, wherein ionic image retention is not observed after pixels have been turned on for two minutes.
14. A liquid crystal display device according to Claim 1 ~~or~~ 2, wherein each of the alignment films has a film thickness of 40 nm to 300 nm.
15. A liquid crystal display device according to ~~any of~~ Claims 1, 3 ~~and~~ 10, wherein the insulating film has a film thickness of 100 nm to 4  $\mu$ m.
16. A liquid crystal display device according to Claim 1 ~~or~~ 13, wherein the liquid crystal molecules each of which has a difluorobenzene structure in itself.
17. A liquid crystal display device according to Claim 1 ~~or~~ 13, wherein the liquid crystal contains liquid crystal molecules each of which has a dicyanobenzene structure in itself.
18. A liquid crystal display device according to Claim 1 ~~or~~ 13, wherein the liquid crystal contains liquid crystal molecules each of which has a difluorobenzene structure in itself, as well as liquid crystal molecules each of which has a dicyanobenzene structure in itself.
19. A liquid crystal display device according to Claim 1 ~~or~~ 13, wherein the liquid crystal contains liquid crystal molecules each of which has a monocyanocyclohexane structure in itself.
20. A liquid crystal display device according to Claim 1 ~~or~~ 13, wherein the liquid crystal contains liquid crystal molecules each of which has a monocyanocyclohexane structure in itself, as well as liquid crystal molecules each of which has a difluorobenzene structure in itself.
21. A liquid crystal display device according to any of Claims 1 to 20 or 22 to 41, wherein its ionic image retention strength is 3 or less.